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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/607,256	06/30/2000	David M. Barth	042390.P7708	9801

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EXAMINER	
CASIANO, ANGEL L	
ART UNIT	PAPER NUMBER
2182	9

DATE MAILED: 07/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/607,256	BARTH ET AL.	
	Examiner	Art Unit	
	Angel L. Casiano	2182	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 April 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5-17,19-31 and 33-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-17,19-31 and 33-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on *22 April 2003* is: a)☒ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to Amendment filed 21 April 2003.

2. Claims 1-3, 5-17, 19-31, 33-42 are pending in the application. Claims 4, 18, and 32 have been cancelled.

Drawings

3. Objections to the Drawings have been overcome with the corrections filed in the Amendment.

Specification

4. Objections to the Specification have been overcome with the correction filed in the present Amendment.

Claim Objections

5. Objections to the claims have been overcome with the amendments to the claims filed 21 April 2003.

Claim Rejections - 35 USC § 112

6. Rejections under 35 U.S.C. 112, second paragraph, have been overcome with the Amendment filed 21April 2003.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1, 5, and 7-17, 19-31, 33-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art, Salgado [US 5,579,447].

9. Salgado was cited as prior art in the previous Office Action. The rejections are respectfully maintained and repeated as set forth below.

Regarding claim 1, Salgado discloses a method including (see col. 12, lines 58-60) starting an Input/Output (I/O) request to a device (see col. 12, lines 60-65). The Salgado reference does not expressly include a scheduling driver to start the I/O request, but it does teach its functionality, since it includes programming and selecting the jobs to be performed (see col. 13, lines 58-59; col. 14, lines 27-31). This method in the reference is capable of determining if the device is busy (see col. 10, lines 26-32) and if the device is busy (see column 1, lines 16-18), it provides an estimated processing time for the request to be completed (see Abstract; col. 2, lines 10-15). The method disclosed in the reference includes sleeping for the estimated processing time (see col. 11, lines 36-40). If the device is busy, the requests for service must wait (sleep) according to the estimated processing times calculated for each of them. The system disclosed in the reference provides for managing several requests for service in the same device. Therefore, the determined estimated processing time indicates sleeping time for the job request. In addition, it is well known in the art that an application is a program that performs a particular function for the user. One of ordinary skill in the art would have been motivated to establish that the method, as cited by Salgado, teaches scheduling requests

to a device for an application, since these steps are included in the cited disclosure (see citations above). Furthermore, the reference does teach different devices, useable by an application (see col. 4, line 27). Although these devices are part of a "printing subsystem" (see col. 6, line 59), the cited subsystem included a plurality of devices itself (see Figs. 1, 2, 6; col. 7, lines 3-8). It would have been obvious to one of ordinary skill in the art at the time the invention was made that the cited plurality of devices receives an I/O request, as part of the "printing subsystem".

As for claims 5 and 7, the method in the reference discloses obtaining and providing the I/O operation results (see Figure 10, steps "174", "175", "178") after sleeping (see claim 4) for the estimated processing time. The method also determines if the I/O request has been completed (Figure 10, "178"). Although the prior art does not mention a scheduling driver, the method disclosed by the reference includes programming that select the jobs to be performed (scheduling) (see col. 13, lines 58-59; col. 14, lines 27-31). It would have been obvious to one of ordinary skill in the art at the time the invention was made that I/O devices (e.g. printer) use a driver, which is software that controls the hardware component. Therefore, it would have been obvious that the I/O device in the reference has a driver that schedules the different jobs (requests).

As for claim 8, Salgado does not include sleeping for a timer tick interval if the I/O request has been completed. However, since Salgado discloses jobs waiting (see col. 11, lines 35-40) to be completed. It would have been obvious to one of ordinary skill in the

art at the time the invention was made that in order to allow the subsequent requests to start, a transition period is needed.

As for claim 9, the method that Salgado teaches includes calculating a new processing time for completing the I/O request, if the request has not been completed (see Figure 8, "172", "174","176","178"; col. 13, lines 23-25).

As for claims 10 and 11, the Salgado reference discloses calling the method to obtain the I/O operation results and determining if the I/O request has been completed (see Figure 8, "172", "174","176","178"). If the request has not being completed, the method in the reference repetitively performs the time estimation calculation until the request has been completed. However, the reference does not expressly mention sleeping for the estimated processing time. Nonetheless, it would have been obvious to one of ordinary skill in the art at the time the invention was made that in order to allow the subsequent requests to start, a transition period is needed. In the prior art the job continues and the estimated processing time is updated (col. 10, lines 49-51).

As for claim 12, if the device is busy, the reference estimates an amount of time left and provides the amount of time left (see col. 11, lines 36-40).

As for claims 13 and 14, the method in the cited reference sleeps for the estimated amount of time left and then starts the I/O request. However, the reference does not teach repetitively performing the operation of calling and determining if the device is busy.

Nonetheless, if the device was performing a previous job, it does not become available (see Figure 8) until the previous job is done. Therefore, the queued jobs do not need to repeatedly perform the operations, since each of them (col. 11, lines 36-40) has an estimated time for service. The amount of time that a request needs in order to be completed is disclosed in the reference as being continuously updated. It would have been obvious to one of ordinary skill in the art at the time the invention was made that the estimated time left to complete a previous job is indicative of the amount of time left to service a subsequent request.

Regarding claims 15-17 and 19-28, these constitute the machine-readable instructions for the method of claims 1-3, 5-14. Therefore, these claims are rejected under the same rationale.

Regarding claims 29-31 and 33-42, the Salgado reference teaches an apparatus comprising a processor and a memory. The apparatus in these claims is directed to the method of claims 1-3 and 5-14. Therefore, these claims are rejected under the same rationale.

10. Claims 2-3, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art, Salgado [US 5,579,447] in view of Lenny [US 6,467,054].

11. Salgado and Lenny were cited as prior art in the previous Office Action. The rejections are respectfully maintained and repeated as set forth below.

Regarding claim 2, Salgado does not mention determining whether a locked flag is set (device busy) or not (device not busy). Nonetheless, Lenny teaches a method that includes (Fig. 9, "158"; col. 2, lines 60-61) setting a flag to indicate that a device is busy. If the flag is not set in the Lenny reference, the device is not busy. It would have been obvious to modify the Salgado reference by including a flag, since its use is well known in the art as an indicator in methods and processes.

As for claim 3, Salgado does not disclose a method that includes setting a locked flag if the device is not busy. However, Lenny teaches a method that includes (Fig. 9, "158"; col. 2, lines 60-61) setting a flag to indicate that a device is busy. It would have been obvious to one of ordinary skill in the art that a flag is an indicator and that it can be set to identify the device as being available (not busy).

Regarding claim 6, Salgado does not include in its disclosure the step of clearing a locked flag if the I/O request has been completed. Nonetheless, Lenny teaches a method that includes (Fig. 9, "158"; col. 2, lines 60-61) setting a flag to indicate that a device is busy. It would have been obvious to one of ordinary skill in the art that a flag is a variable, which that can take one of two values and used to indicate one of two outcomes or to control which of two things is to be done. Therefore, although Lenny does not use a locked flag to indicate completion of an I/O request, it would have been obvious to one of ordinary skilled in the art, that the Salgado reference (Figure 10) would have been modified to include a flag (indicator) showing that the request was completed, as one of two outcomes disclosed in the prior art.

Response to Arguments

12. Applicant's arguments filed 21 April 2003 have been fully considered but they are not persuasive.

13. In the remarks, applicant argued in substance that the references do not teach calling a scheduling driver to start an I/O request to a device for an application, the device being one of a plurality of different types of devices useable by the application.

14. In response to applicant's arguments, the Salgado reference does not expressly include a scheduling driver to start an I/O request. Nonetheless, it does teach this functionality, since it includes programming and selecting the jobs to be performed (scheduling) (see col. 13, lines 58-59; col. 14, lines 27-31). Furthermore, it is well known in the art that an application is a program that performs a particular function for the user. Accordingly, one of ordinary skill in the art would have been motivated to establish that the method, as cited by Salgado, teaches scheduling requests to a device for an application, since these steps are included in the cited disclosure (see citations above). In response to the argument that the cited reference does not teach a plurality of different types of devices, the Salgado reference does teach different devices, useable by an application (see col. 4, line 27). Although these devices are part of a "printing subsystem" (see col. 6, line 59), the cited subsystem does include a plurality of devices itself (see Figs. 1, 2, 6; col. 7, lines 3-8). Examiner respectfully states that it would have been obvious to one of ordinary skill in the art at the time the invention was made that the cited plurality of devices receives an I/O request, as part of the "printing subsystem" (stated above).

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Peterson et al. [US 6549934 B1] teaches method and system for providing remote access and control of devices such as disks, tape drives and modems across a network.
- Marcotte [US 6292856 B1] discloses system and method for scheduling I/O requests in a multi-tasking data processing environment.

16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angel L. Casiano whose telephone number is 703-305-8301. The examiner can normally be reached on 800-530pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on 703-308-3301. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7239 for regular communications and 703-746-7239 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

alc
July 11, 2003

JEFFREY GAFFIN
SUPERVISORY PATENT EXAMINER
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